REMARKS/ARGUMENTS

Claims 2, 13, 18-20, 28, and 37 are canceled. Claim 35 is amended. Claims 1, 3-12, 14-17, 21-27, 29-36, and 38-39 are pending.

The Examiner rejected Claims 1, 3-12, 14-17, 24, 29, 30, 32, 33, 35, and 36 under 35 U.S.C. 103(a) as being unpatentable over Chien et al. (US 5,895,740).

Claims 1 and 14 recite that the formation of a conformal layer by a first and second deposition of first and second gas chemistries which is not made obvious by the cited references. The Examiner agrees that this is not expressly taught by Chien. The Examiner stated Chien discloses that changes of ratio are the result of effective variable that affects the thickness of the deposited layer, citing Chien et al., column 5, lines 43-62 and that it would have been obvious to change the reacting gas ratio to an amount which would not be expected to significantly affect the characteristics of the deposition process. The cited section of Chien et al. teaches that one set of process parameters provides a thinner polymeric layer and that another set of process parameters provides a thicker polymer layer. Therefore, one set of processing parameters may be selected to provide a thinner polymeric layer and another set of processing parameters may be selected to provide a thicker polymeric layer. Nothing in the cited section teaches changing the process parameters during the deposition or that the process parameters would change during the deposition. Therefore, the Examiner failed to point out anything in Chien et al. that teaches or suggests the formation of a conformal layer by a first and second deposition of first and second gas chemistries. For at least these reasons, Claims 1 and 14 are not made obvious by Chien.

Claim 24 recites that the layer to be etched is a conductive layer. Chien in col. 5, lines 9 to 12, teaches that the layer that is etched is a dielectric layer 34. Nothing in Chien teaches or suggests that the process may be successfully used for etching conductive layers. For at least these reasons, Claim 24 is not anticipated or made obvious by the cited references.

Claim 35 has been amended to incorporate all of the limitations of Claim 37, which the Examiner objected to and said would be allowable if written in independent form. For this reason, Claim 35, as amended, should be allowable.

Dependent Claims 3-12, 15-17, 29, 30, 32, 33, and 36 are also patentably distinct from the cited references for at least the same reasons as those recited above for the independent

claims, upon which they ultimately depend. These dependent claims recite additional limitations that further distinguish these dependent claims from the cited references.

For example, Claims 3 and 16 recite a third deposition with the first gas chemistry and a fourth deposition with the second gas chemistry. It would not be obvious to provide a third deposition using the first gas chemistry and a fourth deposition using the second gas chemistry. The Examiner failed to point out anything that discloses or makes obvious alternating the gas chemistry. The Examiner stated that Chien et al. discloses that the changes of ratios are a result of effective variable that affects the thickness of the deposited layer and that it would have been obvious to one of ordinary skill in the art to change the reacting gas ratio to an amount which would not be expected to significantly affect the characteristics of the deposition process, that is the claim is open to extremely small changes that would make them insignificant changes in ratios. Although it would appear that such variations are not significant, it was found that modulating the chemistry over repeatable cycles provided more vertical walls. This is not disclosed or suggested by Chien.

In addition, Claims 4 and 11 further recite that the second critical dimension is not greater than 70% of the first critical dimension. Nothing in the cited references teaches or suggests that the critical dimension could be reduced by more than 30% while maintaining uniform sidewalls. The ability to provide sufficiently conformal walls to allow such a reduction was an unexpected result. The Examiner stated that Chien et al. teaches that the thickness of the conformal layer may be controlled by changing various parameters. However, Chien does not teach or suggest that it is possible to provide a conformal layer with a thickness sufficient to reduce the critical dimension by more than 30%. The inventive process of using a first deposition gas chemistry and then a second deposition with a second gas chemistry provides a uniform sidewall deposition to reduce the CD more than 30%, which is unexpected in the prior art. In the prior art, a deposition that reduced the CD more than 30% provided non-uniform sidewalls. For at least these reasons, Claims 3-12, 15-17, 30, 32, 33, 35, and 36 are not anticipated or made obvious by the cited references.

The Examiner stated that Claims 21-23 and 25-27 are allowed.

The Examiner stated that Claims 31, 34, and 37-39 would be allowable if rewritten in independent form to include all limitations of the base claim and any intervening claims. Applicants' attorney appreciates the Examiner's comments and will amend the claims

accordingly, if required at a later time. Claim 35 has been amended to incorporate all of the limitations of Claim 37 and the claims upon which Claim 37 is based. Claim 37 has therefore been canceled.

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number (650) 961-8300.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

Michael Lee
Registration No. 31,846

P.O. Box 70250
Oakland, CA 94612-0250
Telephone: (650) 961-8300